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IN THE UNITED STATES DISTRICT COURT  
DISTRICT OF UTAH

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POLAR ELECTRO OY,  
  
Plaintiff,

v.

SUUNTO OY, AMER SPORTS WINTER &  
OUTDOOR d/b/a/ SUUNTO USA, and  
FIRSTBEAT TECHNOLOGIES OY,  
  
Defendants.

**MEMORANDUM DECISION  
AND ORDER CONSTRUING CLAIMS  
PURSUANT TO *MARKMAN* HEARING**

Case No. 1:17-cv-0139 CW

Judge Clark Waddoups

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**INTRODUCTION**

Plaintiff Polar Electro Oy (“Polar”) owns a patent that addresses interference-tolerant transmission of heartbeat signals (the ‘346 patent) and another patent that addresses determining a person’s energy consumption during exercise (the ‘227 patent). Polar asserts that Suunto Oy and Amer Sports Winter & Outdoor (collectively “Suunto Oy”) have infringed both patents and that Firstbeat Technologies Oy has infringed the ‘227 patent.

On May 8, 2018, the court held a hearing pursuant to *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995), *aff’d*, 517 U.S. 370 (1996), to construe disputed claim terms. The court determined during the hearing that the issue was premature, and reserved ruling on the matter.

Hearing Tr., at 114, 116 (ECF No. 283).<sup>1</sup> On December 5, 2019, the court held a hearing to address various matters and notified the parties of its proposed claim construction based on a review of the record, oral argument, and additional briefing. This memorandum decision now sets forth the court's claim construction for all terms except "calculating unit for calculating." Expert evidence as to what one skilled in the art knows is needed for the remaining term.

### **BACKGROUND**

The two patents at issue are U.S. Patent No. 5,611,346 and U.S. Patent No. 6,537,227. The '346 patent focuses on "coding a pulse signal . . . in such a way that it is possible to pick up the correct signals" even in an environment where there is interference. '346 patent, col. 1:45-46 (ECF No. 205-9). The patent is now expired, but Polar filed its infringement action prior to its expiration.

The '227 patent focuses on an improved method for determining a person's energy consumption during exercise that "take[s] into account that a fit person performs a larger amount of work at a given heart rate level than an unfit person," and that energy consumption is thereby impacted. '227 patent, col. 1:42-45 (ECF No. 205-1). The '227 patent has undergone three re-examinations that modified the original claims. The claims from the second reexamination are at issue in this memorandum decision. The third reexamination confirmed the patentability of those claims and added new claims, '227 patent, Re-exam Cert. C3, col. 1:15-19 (ECF No. 205-4), but the prosecution history from each of the reexaminations is relevant to this case.

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<sup>1</sup> When referring to a page number in the record, the court references the ECF page numbering at the top of the page and not the numbering at the bottom of a document or the appendix numbering provided by the parties.

The parties filed a Joint Claim Construction Chart (ECF No. 250) on March 9, 2018. The chart reflects the terms in dispute, which the court addresses below.

### **ANALYSIS**

“The purpose of claim construction is to ‘determine the meaning and scope of the patent claims asserted to be infringed.’” *02 Micro Int’l, Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008) (quoting *Markman*, 52 F.3d at 976) (alteration omitted). Disputes about the meaning and scope of a claim must be resolved by the court, not the jury. *See id.* A court “must begin with the words of the claims themselves.” *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 457 F.3d 1293, 1301 (Fed Cir. 2006) (citation omitted). The court then construes a term based on its ordinary and customary meaning to one skilled in the art “at the time of the invention.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). A court views the term “in the context of the entire patent, including the specification,” as well as the prosecution history. *Amgen Inc.*, 457 F.3d at 1301 (quotations and citations omitted). When needed, a court also may use extrinsic evidence to determine the meaning of a term. *Id.* (citations omitted).

#### **I. ‘346 PATENT TERMS DISPUTED BY THE PARTIES.**

The following are the terms in dispute for the ‘346 patent, and the court’s construction of the terms.

##### **A. Term 1: Forming groups of data pulses (Claim 1)**

Polar contends Term 1 needs no construction. Joint Claim Chart, at 7 (ECF No. 250). Suunto contends the term means “forming *uniform* groups of data pulses from an *analog signal*.” *Id.* (emphasis added). According to Suunto, an analog signal is required because Polar disclaimed

binary coding when distinguishing prior art during the patent prosecution.

A patent “applicant can make a binding disavowal of claim scope in the course of prosecuting the patent, through arguments made to distinguish prior art references.” *Cordis Corp. v. Medtronic Ave, Inc.*, 511 F.3d 1157, 1177 (Fed. Cir. 2008). “Such argument-based disavowals will be found, however, only if they constitute clear and unmistakable surrenders of subject matter.” *Id.* (citations omitted). Additionally, “the scope of such a disavowal will depend on the nature of the argument made by the patentee.” *Id.* Thus, “even in the case of an unequivocal disavowal of claim scope, the court must construe the claim congruent with the scope of the surrender.” *Id.* (quotations and citation omitted).

In this case, Polar distinguished the Gorman patent (U.S. Patent No. 5,400,794) to overcome claim rejection. The first paragraph of its disclaimer states:

The Gorman reference uses a digital binary identification sequence. The present invention employs time-interval coding of both the heartbeat data per se and the identification pulses. Such time-interval coding is not taught or suggested by the Gorman reference. In the Gorman reference, every binary bit of the *identification* must be received, i.e., every bit of the *identification* sequence has some meaning. In the present invention, it is only necessary to receive the peaks of the *identification signals* defining the time interval.

‘346 Patent Prosecution History, at 13 14 (ECF No. 205-11) (underlining in original, italics added).

A person’s heart beat necessarily is based on an analog signal initially, although it may be converted to digital thereafter. Polar separately specified that the patent’s “identification pulses” are analog in order to distinguish Gorman because Gorman taught a digital binary *identification* sequence. The second paragraph of the disclaimer further details its scope:

[R]egarding the Examiner's comments on the various binary sequences, as contained in paragraph 7 of the Office Action, Applicants note that these binary sequences are constrained to have discrete numbers of "zero" bits between the "one" bits. Not only is the *identification* process with the presently claimed invention time-interval coded (as opposed to binary), it can inherently have an infinite and continuous number of possible time intervals to *identify* the transmitter to the receiver. This is to be contrasted with the Gorman reference wherein the binary "ones" must inherently be separated by a finite and discrete number of binary "zeros." Applicants therefore respectfully submit that the time-interval coded identification pulses defined in the amended claims cannot fairly be said to read upon the 8-bit binary identification codes of the Gorman reference.

*Id.* at 14 (underlining in original, italics added). Based on the above, the court concludes Polar expressly limited the patent's identification pulses to be only analog signals and not binary.

Although a clear disclaimer exists with respect to the "identification pulses," that term is not before the court. Instead, the term at issue is "groups of data pulses." As detailed in the Specification, not all data pulses are identification pulses. *See e.g.*, '346 patent, col. 3:26 44, 4:46 66 (ECF No. 205-9). Polar only distinguished Gorman based on the identification pulses. The court therefore concludes that it would be improper to apply the analog-signal disclaimer to all other data pulses in the patent. Moreover, neither the disclaimer nor the patent requires all of the groups of data pulses to be uniform.

The court concludes Term 1 may be understood according to its plain meaning and that no construction is necessary.

**B. Term 2: A first time interval (Claims 1, 8, 9, and 10)**

Polar contends Term 2 needs no construction. Its plain meaning is an interval of time. Joint Claim Chart, at 7 (ECF No. 250). Suunto contends the term means "a predetermined time period

between the first and second identification pulses.” *Id.*

As stated above, the Federal Circuit has said “that claims must be read in view of the specification, of which they are a part.” *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1324 (Fed. Cir. 2008) (quotations and citations omitted). A patent’s specification “is the single best guide to the meaning of a disputed term.” *Id.* (quotations and citations omitted). Nevertheless, a court must be careful not to “impermissibly import[] limitations from the specification.” *Alloc, Inc. v. Int’l Trade Comm’n*, 342 F.3d 1361, 1370 (Fed. Cir. 2003) (citation omitted). When the specification consistently emphasizes a particular feature of the invention, such that the very nature of the claim requires the feature, it is permissible to read that feature into a claim. *Id.*; *Praxair, Inc.*, 543 F.3d at 1324 (citations omitted).

In this case, the Specification consistently states there must be a specific time period between the first and second identification pulses so that the receiver identifies the particular transmission. *See e.g.* ‘346 patent, col. 1:50–55, 4:55–59 (ECF No. 205-9). This is something required by the very nature of the claim. Indeed, the Specification states:

The only essential thing is that the time interval between the two identification pulses contained in the transmission corresponds to the *specific* time interval determined for each transmitter-receiver.

*Id.* col. 5:42–45. This indicates the time interval must be “specific.” Using the language from the patent itself, the court construes the term to mean “A specific time period between the first and second identification pulses.”

**C. Term 3: By means of sensing said first time interval (Claim 1)**

Polar contends this is a method claim step that explains how the claimed method identifies

groups of pulses by sensing a time interval. Joint Claim Chart, at 7 (ECF No. 250). Suunto contends the term is to be construed as a means-plus-function under 35 U.S.C. § 112, ¶ 6. *Id.* According to Suunto, the structure is “a receiver” and the function is “sensing a first time interval.” *Id.*

When determining if a claim element constitutes a means-plus-function term, “[t]he use of the term ‘means’ triggers a rebuttable presumption that § 112, ¶ 6 governs the construction of the claim term.” *Robert Bosch, LLC v. Snap-On Inc.*, 769 F.3d 1094, 1097 (Fed. Cir. 2014) (citation omitted). If “the claim language does not recite the term ‘means,’ [courts] presume that the limitation” is not a means plus function. *Id.* (citation omitted).

Here, the term does use “means” but the complete phrase is “by means of.” With respect to that phrase, the Federal Circuit has stated:

We are unaware of any precedent stating that the presumption is triggered by a claim’s use of the expression “by means of.” In the past we have applied the presumption when a claim uses the word “means” as a noun in the claim: a “means” for doing something. We have not done so for the phrase “by means of.”

*Id.* at 1098–99. Accordingly, a presumption does not exist that this is a means plus function term.

Claim 1 is a “method comprising the steps of.” The claim then list five steps. Paragraph 1(d) identifies a receiver and paragraph 1(e) explains how the data is processed once it is received. ‘346 patent, col. 1:65, 2:1–4 (ECF No. 205-9). It shows how the elements are connected together and “describe[s] how these components perform the claimed functions.” *Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1372 (Fed. Cir. 2015). Under such circumstances, this is not a means plus function, and the court concludes the term needs no construction.

## II. '227 PATENT TERMS DISPUTED BY THE PARTIES.

The following are the terms in dispute for the '227 patent, and the court's construction of the terms.

**A. Term 4: Substantially linear dependent on the heart rate parameter (Claims 5, 6, 21, and 22)**

Polar contends Term 4 needs no construction because it is understood according to its plain meaning. Joint Claim Chart, at 2 (ECF No. 250). Defendants contend the term means, "within a 10% range of variation with respect to exact linear dependence between heart rate and energy consumption." *Id.*

In the "Brief Description of the Invention," the preferred embodiments are discussed. Afterwards, the Specification states, "[i]n the above-described embodiments the expression substantially linear refers to dependences that are within a 10% range of variation in either direction with respect to linear dependence." '227 patent, col. 2:63-66 (ECF No. 205-1). The question is whether Polar intended to act as its own lexicographer when it specified this range.

In *Thorner v. Sony Computer Entertainment America LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012), the Court stated to be "its own lexicographer, a patentee must clearly set forth a definition of the disputed claim term other than its plain and ordinary meaning." (Quotations and citation omitted). It is not enough for the patentee to use a word in the same manner in all of the embodiments. *Id.* (citations omitted). Examples of clear lexicography include saying "this term means . . ." or "the term is defined as . . ." *Id.* at 1366 (citations omitted). In other words, it is an exacting standard that requires "clearly set[ting] forth a definition" and "clearly express[ing] an intent to define the term." *GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed.



Cir. 2014) (citation omitted).

As stated above, a court must be careful not to “impermissibly import[] limitations from the specification,” *Alloc, Inc.*, 342 F.3d at 1370 (citation omitted), unless “the specification consistently emphasizes a particular feature of the invention, such that the very nature of the claim requires the feature.” *Id.*; *Praxair, Inc.*, 543 F.3d at 1324.

Firstbeat offers *Epcon Gas Systems, Inc. v. Bauer Compressors, Inc.*, 279 F.3d 1022 (Fed. Cir. 2002), as an example of the Federal Circuit imposing a numerical limitation with respect to the word “substantially.” In *Epcon*, the Court noted that “substantially” had two different uses within the patent. One “denote[d] language of approximation.” *Id.* at 1031. The other “signifie[d] language of magnitude.” *Id.* With respect to the one signifying magnitude, the Court found the prosecution history added a numerical limitation. *Id.* In other words, that limitation was not derived from the language itself.

In this case, “substantially” is used to denote an approximation and not a magnitude. The 10% variation range is mentioned once in the patent and refers to the variation range in the preferred embodiments. Although used in the preferred embodiments, the 10% range is not required by the very nature of the claim. There must be an approximate linear correlation between a person’s heart rate and energy consumption, but there is nothing necessitating the 10% variation range.

Moreover, Polar did not show a clear intent to act as its own lexicographer. Had Polar stated “substantially linear” refers to a 10% range of variation, then such language may have signaled a specific definition and intent. Polar, however, did not state that. Instead, Polar stated, “[i]n the above-described embodiments, the expression substantially linear refers to . . . .” ‘227 patent, col.

2:63 64 (ECF No. 205-7). The introductory phrase limits the reference to the specified embodiments. Thus, taken as a whole, the court concludes Polar used the 10% range in the embodiments, but did not manifest a clear intent to use that definition to limit claim language.

The court also concludes, however, that the term may not be understood according to its plain meaning. It construes the term to mean “Approximate linear correlation between heart rate and energy consumption.”

**B. Term 5: a maximal oxygen uptake (Claims 5, 6, 21, and 22)**

Polar contends Term 5 means “a value associated with a person corresponding to maximal oxygen uptake that describes the person’s physical performance at a maximum heart rate associated with the person.” Joint Claim Chart, at 2 (ECF No. 250). Defendants contend the term means “A person’s maximum value of oxygen uptake *measured during* maximum performance on the bases of the *breathing gases*.” *Id.* (emphasis added).

Similar to Term 1, Defendants assert their construction is required due to a disclaimer made by Polar during the reexaminations of the ‘227 patent. Again, “[s]uch argument-based disavowals will be found . . . only if they constitute clear and unmistakable surrenders of subject matter.” *Cordis Corp.*, 511 F.3d at 1177 (citations omitted). “Moreover, the scope of such a disavowal will depend on the nature of the argument made by the patentee,” and any construction must be “congruent with the scope of the surrender.” *Id.* (quotations and citation omitted).

Following the first request for reexamination of the ‘227 patent, the examiner stated his reasons for patentability and/or confirmation of the claims. The examiner found the following:

Lubell teaches that actual submaximal oxygen uptake is calculated at regular intervals (e.g., one minute) and that this parameter is used to calculate caloric consumption during training. Lubell's intent therefore is not to extrapolate the energy consumption values from previously charted regression lines, but rather to measure the subject's fitness automatically based upon measured parameters. As such, it would appear that Lubell actually teaches away from this proposed combination . . . .

Statement of Reasons, at 7 (ECF No. 205-6) (internal citations omitted). These reasons show Polar's patent was distinguished over the prior art because the prior art focused on measurements of submaximal oxygen uptake, whereas Polar's patent did not.

During the second reexamination, the examiner stated his reasons for patentability and or confirmation of the claims. Specifically, the examiner stated, "[e]ach of the independent claims now specifies that the person's physical performance is described using 'maximal' oxygen uptake." Statement of Reasons, at 7 (ECF No. 205-7). With respect to the "energy consumption reference value," further language was added to clarify what it is:

[The] maximum value of the energy consumption associated with the person, the maximum value of energy consumption representing a value of energy consumption that is associated with the person and corresponds to a maximum heart rate associated with the person.

*Id.* The examiner noted "Jimenez provides an indication of maximum oxygen uptake, which is correlated with a fitness factor for the subject, but this is not used to obtain an energy consumption reference value." *Id.* Jimenez also "uses consumed oxygen as a parameter, but never specifies that the value is taken when maximal oxygen uptake occurs." *Id.* Moreover, "[t]he only maximum used by Jimenez is to determine the fitness factor." *Id.* The examiner concluded, "Jimenez is not seen to teach the use of maximal oxygen uptake to obtain an energy consumption reference value, as

required by all of the amended independent claims.” *Id.*

The focus of these statements is on the correlation between maximal oxygen uptake and energy consumption. It is not on measuring the maximal oxygen uptake, nor on measuring it through breathing gases.

During the third reexamination, “[t]he patentability of the claims **2–15** and **17–46** [were] confirmed. Claims **1** and **16** were previously cancelled. New claims **47–52** [were] added and determined to be patentable.” ‘227 patent, Re-exam Cert. C3, col. 1:15–18 (ECF No. 205-8). In the Statement of Reasons, the examiner stated the following:

Regarding independent claim 5 and 6 and their respective dependent claims, the prior art of record does not teach a method for assessing a person’s energy consumption during exercise that includes a maximum energy consumption reference value being obtained for the person from maximal oxygen uptake and corresponding to a maximum heart rate associated with the person in combination with assessing the person’s energy consumption using a *measured* heart rate parameter of the person and the maximum value of energy consumption and a lower value of energy consumption.

Statement of Reasons, at 7–8 (ECF No. 205-8) (emphasis added). The only reference to “measured” in the statement refers to the heart rate parameter. This is unremarkable, because the claim language itself states the person’s heart rate information is to be measured during exercise, but the person’s energy consumption reference value is “obtained” from different parameters, including maximal oxygen uptake. ‘227 patent, Re-exam Cert. C2, col. 1:29–35 (ECF No. 205-3). Similarly, for Claims 21 and 22, the examiner used “measured” only when referring to the heart rate parameter. Statement of Reasons, at 8 (ECF No. 205-8).

In reaching these conclusions, the examiner quoted from the following language in Polar's response:

[N]othing in Cooper suggests that subjects participating in the Cooper test use a *meter* to indicate when the respective maximum value of energy consumption or their corresponding maximum heart rate have been reached, but rather only that the subjects rely on their *subjective* physical and mental sensations *just prior* to becoming excessively exhausted.

*Id.* (quoting Polar July 6, 2016 Response, at 9 (ECF No. 205-8 at 53)). The examiner then stated,

Therefore, while Cooper emphasizes recording the maximum O<sub>2</sub> consumption due to its correlation to physical fitness, the maximum O<sub>2</sub> consumption is not correlated with maximum heart rate but rather physical exhaustion.

*Id.* (citation omitted). Although Polar did use the word “meter” when it was distinguishing prior art, when placed in context, meter does not mean “measured.” Instead, it means that it is based on an objective determination of maximal oxygen uptake as opposed to relying upon a person's subjective determination just prior to reaching maximum levels. This conclusion is supported by the Specification wherein Polar states the following:

The maximum value 104C of the oxygen uptake is measured during maximum performance on the basis of the breathing gases. It is also possible to form the maximum value 104C by assessment by means of a neural network model.

‘227 patent, col. 5:36-41 (ECF No. 205-1). Nothing in Polar's disclaimer was so clear and unmistakable to give up all but measured maximum oxygen uptake during exercise based on breathing gases.

Moreover, the doctrine of claim differentiation also factors into the court's analysis. Under this doctrine, “each claim in a patent is presumptively different in scope.” *Ecolab Inc. v. Paraclipse*,

*Inc.*, 285 F.3d 1362, 1375 (Fed. Cir. 2002) (quotations and citation omitted). As such, “the presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim.” *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004) (citation omitted). This “presumption can be overcome if the circumstances suggest a different explanation, or if the evidence favoring a different claim construction is strong.” *Id.*

Here, Claim 17 and Claim 18 are both dependent on Claim 21. Claim 17 refers to “the maximal oxygen uptake that is measured in an exercise corresponding to the maximum heart rate.” ‘227 patent, Re-exam Cert. C2, col. 2:16–17 (ECF No. 205-3) (emphasis omitted). In contrast, Claim 18 refers to “the maximal oxygen uptake obtained by means of a neural network.” *Id.* col. 2:21–22 (emphasis omitted). These claims have remained essentially unchanged through each reexamination, despite being under review, and are in harmony with the Specification recognizing both measured values based on breathing gases and other objective values obtained by means of a neural network. ‘227 patent, col. 5:36–41 (ECF No. 205-1). Had “metered” meant “measured,” it would have been illogical for the patent examiner to allow dependent claim 18 to continue. Claim differentiation therefore argues against importing “measured” as a limitation.

Finally, even though Polar inserted that the values had to be “associated” with the person whose energy consumption is being determined, an objective value derived from a neural network is still “associated” with that person. For each of these reasons, the court concludes the limitations of “measured” and “breathing gases” are improper. The court construes Term 5 to mean “An

objectively determined maximum oxygen consumption associated with a person during the person's physical performance at maximum heart rate."

**C. Term 6: Energy consumption reference value (Claims 3, 5, 6, 19, 21, 22, 33, 39, 51, and 52)**

Polar contends Term 6 requires no construction because "[t]he claim language explains" the term "corresponds to 'a maximum value of energy consumption associated with the person' which the claim language also explains 'represent[s] a value of energy consumption that is associated with the person and corresponds to a maximum heart rate associated with the person.'" Joint Claim Chart, at 3 (ECF No. 250). Defendants contend the term means, "A *measured* energy consumption reference value." *Id.* (emphasis added).

With respect to the term "measured" the same analysis for Term 5 applies to Term 6. Accordingly, adding "measured" is not an appropriate limitation. Based on the intrinsic evidence and oral argument, however, the court concludes the term should be construed for clarification purposes. The court's construction of Term 6 is "A maximum value of energy consumption associated with a person during exercise that corresponds to the maximum heart rate associated with the same person."

**D. Term 7: a measuring means for measuring a person's heart rate (Claims 21 and 22)**

Polar contends Term 7 "is not in means-plus-function format." Joint Claim Chart, at 3 (ECF No. 250). It asserts "'[m]easuring' connotes a structure for measuring the recited information." *Id.* "To the extent," however, "that any construction beyond plain meaning is sought," Polar contends "it means the structures in the specification for measuring including optical and electrical

electrodes.” *Id.* at 4. Polar further asserts the structures includes pressure sensors. Mem. in Opp’n, at 15 (ECF No. 244) (citing ‘227 patent, col. 4:35-36). In contrast, Firstbeat contends this is a means plus function term, where the structure is “limited to the ‘Electrodes’ 500A and 500B” and the function is “measuring a heart rate.” Joint Claim Chart, at 3 (ECF No. 250). Suunto does not seek construction of this term.

As stated above, “[t]he use of the word ‘means’ to describe a claim limitation gives rise to a presumption that the inventor used the term advisedly to invoke the statutory mandates for means-plus-function clauses.” *Masco Corp. v. United States*, 303 F.3d 1316, 1326 (Fed. Cir. 2002) (quotations and citations omitted). “Measuring” is not a noun. It is an adjective that describes or modifies a noun or it is a verb. Whether “measuring” may help denote a structure depends on the word with which it is coupled. For example, if the phrase were a “measuring stick,” a structure would be present. A “measuring means for measuring,” however, does not impart the structure. Moreover, during the claim construction hearing, Polar stated “[i]f the 112, paragraph 6 analysis is applied and the claim is given its scope that’s provided by the specification, Polar would not have a problem with that.” Hearing Tr., at 88 (ECF No. 283). Because Polar has not overcome the presumption, the court concludes Term 7 is a means plus function term.

The next step is to determine what the structure and function are for this term. This “is a two-step process” where “[t]he court must first identify the claimed function.” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1351 (Fed. Cir. 2015) (citation omitted). Next, “the court must determine what structure, if any, disclosed in the specification corresponds to the claimed function.” *Id.* “If the patentee fails to disclose adequate corresponding structure, the claim is indefinite.” *Id.*



at 1352 (citation omitted).

In this case, the term itself sets forth the function: measuring a heart rate. That is the function of this term. With respect to the structure or structures that perform that function, the Specification states the following:

The transmitter electrode belt measures heart rate information by means for measuring heart rate information 500A to 500B. The measuring means are, for instance, electrodes which the heart rate monitor comprises at least two but they may be more. From the electrodes 500A to 500B the heart rate signal is applied to an ECG preamplifier 502 . . . .

‘227 patent, col. 9:25–30 (ECF No. 205-1). The Specification also explains that the electrode belt is one type of heart monitor that is “fitted around the user’s chest measuring the heart rate by means of two or more electrodes.” *Id.* col. 4:7–9. It also explains that heart monitors are “not restricted to any particular . . . type.” *Id.* col. 4:5–6. Thus, it can be “a wrist-worn monitor which operates without the electrode belt to be fitted around the chest *measuring the heart rate* information from the vessel pressure or optically.” *Id.* col. 4:33–36. Stated differently, the Specification indicates the structures that measure the heart rate also include pressure sensors and optical sensors.

Firstbeat contends, however, it should only be electrodes as used in column 9, and to do otherwise conflates “measuring means for measuring” and “heart rate monitor.” Although pressure sensors and optical sensors may be part of the heart rate monitor, they are not the structure of the heart rate monitor. As stated above, the heart rate monitor can be in the form of a transmitter electrode belt, a wrist-worn monitor, and so forth. In contrast, the pressure and optical sensors are what measure in the same manner that electrodes also are what measure. Accordingly, the court

concludes “The structures for performing the function are electrodes, pressure sensors, and optical sensors.”

**D. Term 8: A calculating unit for calculating (Claims 21 and 22)**

Polar contends Term 8 may be understood according to its plain meaning, and that it is not in a means-plus-function format. Joint Claim Chart, at 4 (ECF No. 250). Polar further contends “‘calculating unit’ connotes a structure for calculating. This is evident in the language itself which states that the calculating unit does calculating. The claim language thus recites a unit that calculates.” *Id.* In supplemental briefing, Polar stated that, to the extent the term requires construction, it should be construed to mean “a computer or electronic component configured to calculate.” Polar Supp. Brief, at 10 (ECF No. 369).

Firstbeat contends Term 8 “is a means plus function term.” Joint Claim Chart, at 4 (ECF No. 250). In the Joint Claim Chart, Firstbeat asserted, the structures is “limited to ‘central processor 524,’” and the function is “calculating an assessment of the person’s energy consumption.” *Id.* In supplemental briefing, Firstbeat notes that “unit for” is a nonce word per MPEP § 2181, and therefore is akin to using the word “means.” Firstbeat Supp. Brief, at 4 5 (ECF No. 376). Firstbeat then contends the ‘227 patent fails to disclose a structure for the “calculating unit,” so the claims fail. *Id.* at 10 12. Alternatively, if the court finds a structure is present, Firstbeat contends the structure “in claim 21 is a central processing unit (CPU) programmed to perform both of the algorithms in formulae (4) and (5) of the ‘227 patent.” *Id.* at 14.

In Polar’s supplemental briefing, it cited to a number of patents that use the term “calculating unit for calculating.” Despite such usage, a case has not been presented that discusses how the term

has been construed. Polar contends “the term has been widely used for decades and therefore informs those skilled in the art about the scope of the invention with reasonable certainty.” Polar’s Supp. Brief, at 12 (ECF No. 369).

“The standard is whether the words of the claim are understood by person of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” *Williamson*, 792 F.3d at 1349 (citation omitted). Because the court lacks sufficient information about whether “calculating unit for calculating” has a known meaning to one skilled in the art, the court requests Polar and Firstbeat to provide expert evidence on that issue. The court reserves ruling on Term 8 until after that evidence is received.

**E. Term 9: Assessing the person’s energy consumption (Claim 5)**

Polar contends Term 9 may be understood according to its plain meaning. Joint Claim Chart, at 5 (ECF No. 250). Polar asserts “[t]he ‘227 patent and the claim language explain that the heart rate measuring arrangement assesses the person’s energy consumption during exercise using calculating parameters, which include: heart rate parameters and the energy consumption reference value.” *Id.* Firstbeat contends the term means “*analyzing* the person’s energy consumption using *mathematical algorithms*.” *Id.* (emphasis added). Suunto does not seek construction of the term.

“Analyzing” connotes something different than “assessing.” Analyzing is to study or inspect. It signifies a higher degree of examination than assessing. Assessing may be an approximation, such as assessing the value of property, or it may be establishing a fixed amount, such as assessing a fine. Accordingly, the court finds that construction will help clarify the term.

Immediately following the claim term, the claim states the person’s energy consumption is

assessed “during exercise from a plurality of calculating parameters.” ‘227 patent, Re-exam Cert. C2, col. 2:23–25 (ECF No. 205-3). The patent further explains what the calculating parameters include. These are separate concepts that fall outside of the term at hand. Based on the language that follows Term 9, the court limits its construction so that it is not construing the claim beyond the scope of the specified term. The court construes Term 9 simply to mean “Determining a person’s energy consumption.”

**F. Term 10: Assessment of the person’s energy consumption (Claims 21 and 22)**

Terms 9 and 10 are largely the same, and the analysis for Term 8 applies to Term 9. The court therefore construes Term 9 to mean, “A determination of the person’s energy consumption.”

**CONCLUSION AND BRIEFING SCHEDULE**

For the reasons stated above, the court GRANTS IN PART and DENIES IN PART Polar’s Motion to Determine Markman Issues (ECF No. 209). The court DENIES Suunto’s Cross Motion for Claim Construction (ECF No. 207). The court’s claim construction is set forth above for all claim terms except “calculating unit for calculating” (Term 8). The court reserves ruling on Term 8 until after it receives expert evidence as to whether the meaning of Term 8 is known to one skilled in the art. Polar and Firstbeat shall simultaneously provide expert evidence **on or before January 24, 2020**. Although the court has set forth its claims construction for all other terms, until the court issues its ruling on Term 8, the deadlines for other expert discovery and non-LPR 6.2 summary judgment motions are not triggered. *See* Scheduling Order, at 5 (ECF No. 386).

SO ORDERED this 11<sup>th</sup> day of December, 2019.

BY THE COURT:

A handwritten signature in blue ink, appearing to read "Clark Waddoups", is written over a horizontal line.

Clark Waddoups  
United States District Judge